

SWEET ORANGE SCAB

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Sweet orange scab, caused by the fungus *Elsinoe australis* Bitancourt & Jenkins, is a serious foreign threat to Florida's production of sweet oranges, mandarins, and lemons for the fresh market (3). The disease was first reported from Paraguay in 1882 (2). It has since been found in Argentina, Brazil, Boliva, and Uruguay in South America, as well as in New Caledonia, Eritrea, and Sicily (2). Sour orange scab, caused by *Elsinoe fawcetti* Bitancourt & Jenkins, is present in Florida but rarely attacks sweet orange.

SYMPTOMS. On young fruit, the pathogen causes deformation of the rind, which becomes protuberant or swollen where the lesions occur. The deformations gradually disappear as the fruit enlarges, and the mature fruit has the normal spherical shape. Individual lesions are pustules of corky tissue which are round to irregular, slightly raised, and usually slightly convex, measuring 2-6 mm in diameter. Larger lesions are more flattened and may be traversed by more or less deep furrows which result from the rupture of corky tissues. In some cases, a circular fissure surrounds the central part of the lesion, and this part may be detached with comparative ease, leaving a slightly depressed scar covered with a silvery pellicle (1).

The corky tissues are buff-colored, sometimes with a reddish tinge which is also noted in the rind surrounding the lesions. The conidial pustules of the causal fungus are often visible near the center of the lesion and are buff to brown or black (1).

Sweet orange scab rarely occurs on leaves, but if it does, the pustules are located on the lower surface clustered along the midrib (2) and seldom form protuberant outgrowths as on the fruit. They are smooth and frequently have a somewhat glossy surface. Lesions are usually less than 2 mm in diameter. Scab is also rare on twigs, but when they occur, lesions resemble those on leaves.

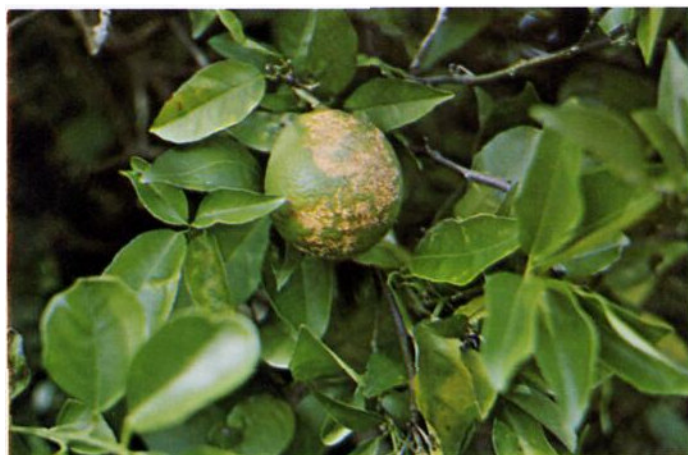


Fig. 1. (a) Sweet orange scab on sweet orange fruit, (b) Sour orange scab on fruit and leaves of temple orange.

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COMPARISON OF SWEET AND SOUR ORANGE SCAB

FACTORS	SWEET ORANGE SCAB	SOUR ORANGE SCAB
Varieties	Sweet orange, mandarins, their hybrids, and lemons. Sour orange affected.	Sour orange, mandarins, their hybrids, and lemons. Sweet orange rarely affected.
Symptoms	Lesions a. Dark in color b. Round in shape c. Flattened and smooth in texture d. Common on fruit e. Rare on leaves and twigs f. Hand lens reveals fungal fruiting structures in concentric rings	Lesions a. Light in color b. Irregular in shape c. Raised and rough in texture d. Common on fruit e. Common on leaves and twigs f. Fungal fruiting structures rarely present in concentric rings
Temperatures	Optimum growth range 24.5 - 29.0°C Optimum growth 26.0°C Growth at 37.5°C Yes	Optimum growth range 20.0 - 24.5°C Optimum growth 21.0°C Growth at 32.5°C No

SURVEY AND DETECTION.

1. Look for scab symptoms on any sweet orange variety, since they are rarely affected by sour orange scab. Mandarins are attacked by both.
2. Sweet orange scab is usually confined to sweet orange fruit, while sour orange scab usually also affects leaves and twigs of its hosts.

CONTROL. In Argentina and Brazil, two copper sprays are used to control scab, one applied just prior to or early during the spring flush and a second during petal fall. Tribasic copper sulfate (33% a.i.) at 5 gm/L (0.75 oz/gal) or copper oxychloride (50% a.i.) at 3 gm/L (0.45oz/gal) are used. Tests showed that one application of Benlate plus copper at the time of flowering also gave excellent control of scab.

LITERATURE CITED.

1. BITANCOURT, A. A., and A. E. JENKINS. 1937. Sweet orange fruit scab caused by *Elsinoe australis*. J. Agric. Res. 54:1-18.
2. KNORR, L. C. 1963. Dossier on sweet orange scab. Citrus Industry 44(9): 7, 9, 12, 26.
3. KNORR, L. C. 1965. Serious diseases of citrus foreign to Florida. Fla. Dept. Agric. Bull. No. 5. pp 41-44.